

HawkEye-CL

Camera Link Frame Grabbing and Image Processing System



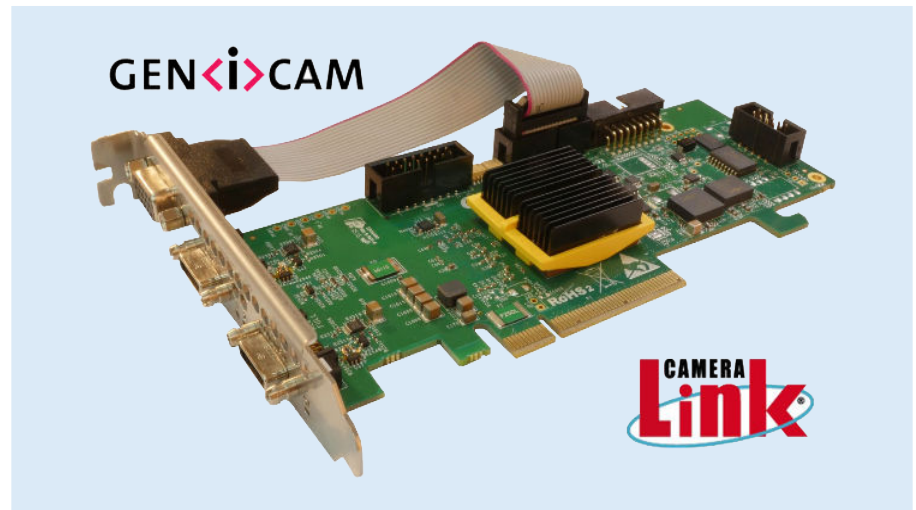
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Key Features

- Camera Link Rev. 2.0 compliant
- Camera Link modes: Base, Medium, Full, 80-bit (Deca)
- Option for connecting 2 Base cameras
- Pixel formats supported: Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/color).
- Huge frame buffers of up to 17 GB to enable high-acquisition capacity and to enhance image processing capabilities.
- Ultra-high data offload capability via PCIe Gen. 3 x8 enabling high-resolution post processing on host computer.
- Infrastructure for full Vision/Imaging system solutions, including image acquisition, real-time image processing, and post-processing on host.
- Flexibility to realize any camera interface and protocol for streaming the camera data directly to the FPGA.
- ProcVision suite for developing, debugging, verifying and integrating user Image Signal Processing (ISP) block on FPGA.

Target Application Examples

- Automotive and Inspection applications demanding real-time analysis and system response.
- Military & Aerospace applications combining real-time and post-acquisition analysis.
- Medical & Scientific applications requiring high-resolution imaging capabilities.
- Traffic & Transportation applications processing high-volume data from



The Gidel HawkEye-CL frame grabbing and real-time image processing system provides the core infrastructure required to support the most demanding Vision and Imaging applications.

The HawkEye series offers a number of options to accommodate diverse application needs, from plug-and-play high-performance frame grabbers to a full system solution that comprises acquisition, open-FPGA image processing, and a flexible custom camera interface.

The HawkEye-CL is Camera Link Rev. 2.0 compliant and supports 80-bit Camera Link modes, including 10-bits/8-tap and 8-bit/10-tap modes. The HawkEye-CL family is based on PCIe Gen. 3 x8 providing CPU-free ultra-fast host throughput. Huge data buffers of up to 16 GB fortify the acquisition bandwidth and the image processing capabilities on powerful Arria 10 FPGAs.

The HawkEye-CL is supported by the ProcFG and InfiniVision GUI applications, API library and examples for developing a customized application. For on-FPGA image processing, Gidel provides the ProcVision suite that includes the CertifEye kit for developing and verifying the user IP block, and the ProcWizard application for integrating the user's IP and for customizing the acquisition and image processing flow. The HawkEye-CL is also supported by Gidel's HLS ASP for compiling untyped C++ code to FPGA HDL code using Intel's HLS compiler.



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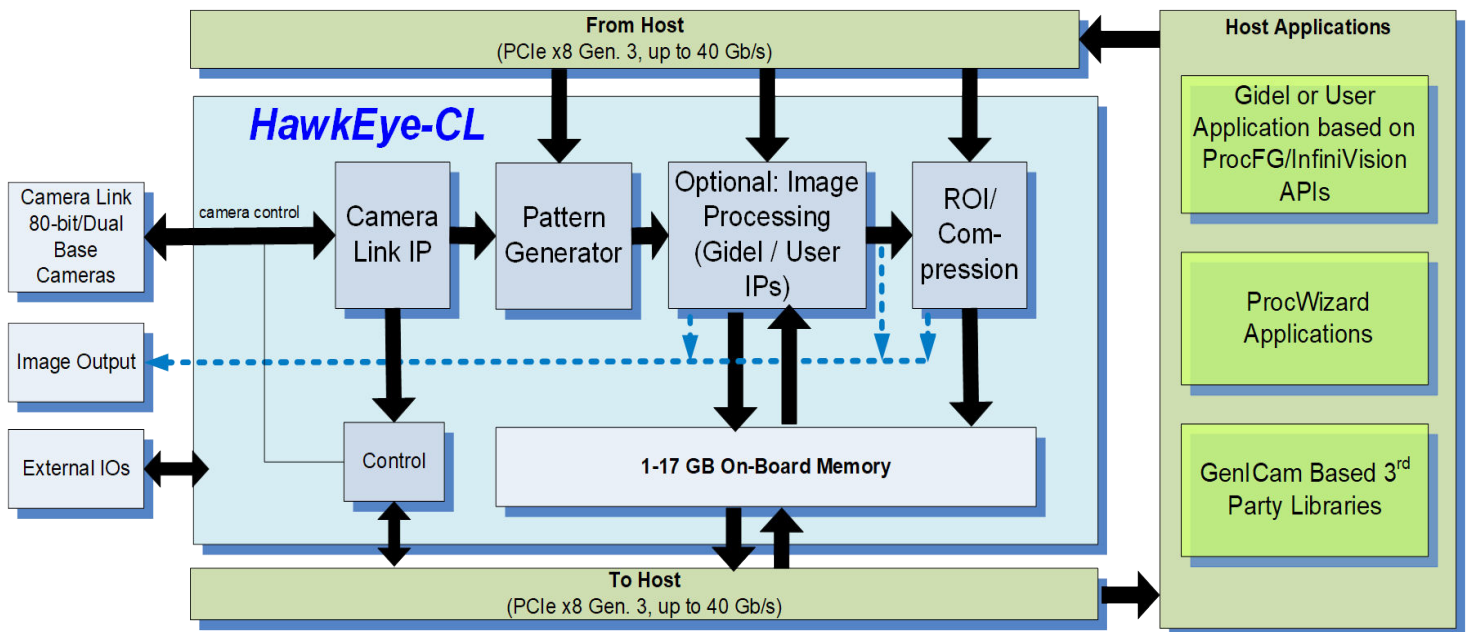
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HawkEye-CL Camera Link Acquisition and Image Processing System



FEATURE	SPECIFICATIONS
Camera Interface	1 80-bit (Deca), Full, Medium or Base Camera Link or 2 Base Camera Links with option for PoCL
Image Formats	Mono, Bayer, RGBA (8, 10, 12, 14 and 16 bits/color) and RGB (8, 10 and 12 bits/color).
Max. Resolution	Horizontal: 16 K pixels (64-bit) Vertical: 65 K lines
Tap Configuration	All configurations as defined by the Camera Link standard, including 80-bit (Deca): 10 taps/8bits, 8bits/10taps.
Connectors	2x SDR26 (mini Camera Link) VGA15-pin for connecting GPIO
Pixel Clock	Up to 85 MHz
Acquisition Rate	Up to 25 Gb/s acquisition rate
Host Bus	PCIe x8 Gen. 3
On-board memory	1-17 GB
Ambient Temperature	0 – 55° C, relative humidity up to 90%
Form Factor	PCIe low-profile
GPIO	RS422, opto-coupler, LVTTTL and 30V at 0.9A

FEATURE	SPECIFICATIONS
Software Support	ProcFG and InfiniVision GUI, API and examples.
Ecosystem Support	<ul style="list-style-type: none"> Option for embedded HDR, white balance, HDR, histogram, compression and other ISPs ProcVision Kit for Vision flow and processing customization Proc Dev Kit for automatic generation of Application Support Package and efficient development on FPGA InfiniVision software for multi-camera acquisition and synchronization Supports GenICam GenTL API support for third-party software, including as MVTec Halcon™ machine vision software
OS Support	<ul style="list-style-type: none"> Win 10/11 and Server 2016/2019/2022 (64-bit) Linux (kernel 2.6.x- 6.12) Linux version doesn't include the ProcFG/InfiniVision GUI and the ProcWizard application



Typical HawkEye-CL acquisition and processing system implementation



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